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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,750	01/30/2002	Robert J. Devins	BUR9-2001-0016-US1	7058

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EXAMINER	
GUILL, RUSSELL L	
ART UNIT	**PAPER NUMBER**
2123	

MAIL DATE	DELIVERY MODE
03/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/060,750	DEVINS ET AL.	
	Examiner	Art Unit	
	RUSSELL GUILL	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2 and 8-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2 and 8-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is in response to an Amendment filed January 11, 2008. Claims 2, 8 - 34 are pending. Claims 2, 8 - 34 have been examined. Claims 2, 8 - 34 have been rejected.

2. A new Examiner is assigned to this application. Details are recited in the Conclusion section of this Office action.

3. **The Examiner would like to thank the Applicant for the very well presented response. The Examiner appreciates the effort to carefully analyze the Office action, and make appropriate arguments and amendments.**

Response to Remarks

4. Regarding all claims rejected under 35 USC § 103:

a. Applicant's arguments are persuasive, but moot; new rejections are provided below based upon the amended claims. However, the Examiner replies with the following references and comments:

i. Prior art made of record and not relied upon teaches common knowledge in the art:

(1) Bergamaschi et al., "Designing systems-on-chip using cores", June 5, 2000, Proceedings of the 37th Design Automation Conference 2000, pages 420 - 425; teaches a slave device with a separate high-speed data bus and low-speed control bus connected to an SOC processor core (*figure 1, PLB Slaves, DCR bus, PLB Masters (e.g. CPU)*).

(2) Auerbach (U.S. Patent Number 6,199,126) teaches an EBIU on both ends of a bus (*figure 7*).

(3) M. Morris Mano, "Computer System Architecture", second edition, 1982, Prentice-Hall, pages 272, 433; appears to teach the essential architecture of the invention in figure 7-20.

(4) Tom Shanley and Don Anderson, "ISA System Architecture", third edition, 1995, Addison-Wesley, pages 13, 16 - 19, 54, 125, 154, 241; teaches separate buses for address, data and control signals, and external bus interface units (figure 5-1).

ii. The specification recites that the EBIU is meant to refer to any communications channel that can connect the SOC to the external model and provide the external bus mastering functionality, which appears to allow the EBIU to be a wire. The specification appears to allow the SOC EBIU to be a different device than the test bench EBIU. Further, figure 1, element 206, appears to show only one-way communication from the SOC to the verification test bench.

iii. Blaner appears to teach test case software running on the SOC and controlling an external device (page 208, section E. Verification Testbench). Blaner also teaches an EBIU connected to an SOC CPU in figure 2.

Claim Objections

Claims 9 – 14, 16 – 20 and 22 - 27 are objected to because of the following informalities: The claims all contain the phrase, "all the limitations of which are incorporated herein by reference". The phrase appears to be redundant because the dependent claims inherit the limitations of the parent.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

a. Claims 2, 8 – 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

i. Regarding independent claims 2, 8 and 15, and dependent claims: the independent claims 2, 8 and 15 appear to be directed to a physical hardware system, however the specification appears to teach a software model of a physical hardware system. It is unclear whether the claims are directed to physical hardware or a software model.

ii. Regarding independent claims 21 and 28, and dependent claims: the independent claims appear to be directed to a method that uses physical hardware, however the specification appears to teach a software model of a physical hardware system. It is unclear whether the claims are directed to a method that uses physical hardware or a software model.

iii. Regarding claim 26, the claim recites, "said verification test interface". The term appears to have insufficient antecedent basis.

iv. Regarding claim 33, the claim recites, "said verification test interface". The term appears to have insufficient antecedent basis.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 2, 8 – 14, 15 – 20, 21 – 27 and 28 - 34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

a. Regarding claims 2, 8 – 14, 15 - 20, the claims are directed to a system for verification of a system-on-chip, but none of the claim limitations appear to expressly or inherently require tangible physical components. An ordinary artisan interpreting the claim in light of the specification would reasonably interpret the claim as encompassing a purely software system. All of the components recited in the claim appear to be software elements, including the CPU, the SOC interface, and the EBIU interfaces. Further, since the system contains software, which is an abstract idea, the system must be directed to a practical application having a useful, concrete and tangible result. The systems of the claims do not appear to perform verification nor produce a result that may be used in a practical application.

b. Regarding claims 21 – 27, the claims do not appear to produce a tangible result needed to support a practical application. The claims are directed to a method of verification for a system-on-chip (SOC), but the claims do not appear to perform verification nor produce a result that may be used as a practical application.

c. Regarding claims 28 - 34, the claims do not appear to produce a tangible result needed to support a practical application. The claims are directed to a method of verification for a system-on-chip (SOC), but the claims do not appear to perform verification nor produce a result that may be used as a practical application.

Allowable Subject Matter

8. Any indication of allowability is withheld pending resolution of the outstanding rejections.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

10. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date

of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure, and teaches common knowledge in the art:

a. M. Morris Mano, "Computer System Architecture", second edition, 1982, Prentice-Hall, pages 272, 433; appears to teach the essential architecture of the invention in figure 7-20.

b. Tom Shanley and Don Anderson, "ISA System Architecture", third edition, 1995, Addison-Wesley, pages 13, 16 – 19, 54, 125, 154, 241; teaches separate buses for address, data and control signals, and external bus interface units (figure 5-1).

c. Auerbach (U.S. Patent Number 6,199,126) teaches an EBIU on both ends of a bus (*figure 7*).

d. Nightingale (U.S. Patent Application Publication 2002/0183956) teaches SOC test software in an SOC controlling an external device.

e. Bergamaschi et al., "Designing systems-on-chip using cores", June 5, 2000, Proceedings of the 37th Design Automation Conference 2000, pages 420 – 425; teaches a slave device with a separate high-speed data bus and low-speed control bus connected to a SOC processor core (*figure 1, PLB Slaves, DCR bus, PLB Masters (e.g. CPU)*).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russ Guill whose telephone number is 571-272-7955. The examiner can normally be reached on Monday – Friday 9:30 AM – 6:00 PM.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist: 571-272-2100.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Russ Guill
Examiner
Art Unit 2123

RG

/Paul L Rodriguez/

Supervisory Patent Examiner, Art Unit 2123